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of the role of Diatoms as the nutritive foundation of the various successions of life and activity among the micro-organisms.

In a careful and quantitative study of the plankton at the south end of the Isle of Man, it has been found that the Diatoms are foundational to the most rapid annual increase in life, which takes place in the Spring. Dinoflagellates furnish a well-marked, but less pronounced, maximum later, between April and August. Copepods have a maximum in early summer, usually later than that of the Dinoflagellates.

E. J. Allen and E. W. Nelson find that Diatoms are peculiarly satisfactory food in the artificial rearing of various marine larvae (sea-urchins, worms, mollusks). Several American students have found that most cultures in which Diatoms succeed prove prolific of Ameba.

A PECULIAR ACHLYA

W. C. Coker in Botanical Gazette for Nov. 1910, describes a new species of *Achyla* from North Carolina. He calls it *A. caroliniana*. The oogonial hyphae often branch in such a way as to suggest the three balls of the pawn-brokers shop. The oogonial hypha in about 1-6 of the oogonia protrudes into the oogonium in a way to suggest the action of an antheridium. These are the distinctive marks. This genus and other Saprolegniaceae present a most attractive field of study for the amateur as well as the professional student of aquatic botany. They are easily cultivated, are easily observed, and respond readily to changes of conditions.

TRANSFORMATION OF SPECIES OF VAUCHERIA

A French investigator has succeeded in producing a transformation in species of the common alga *Vaucheria* by varying the conditions of growth. *V. terrestris*, which showed as a pure culture when grown in the air, assumed all the characteristics of *V. geminata* when grown in an aqueous nutrient solution. By more vigorous nutrition the experimenter was able to effect a still further transformation into a form like no known form, in which there was a tendency for the oogonial branches to assume further vegetative divisions and later to develop into both oogonia and antheridia. In other words, a branch that normally produced female

structures only, through changed nutrition came to develop both sexes.

SEXUAL PERIODICITY IN DICTYOTA

An interesting case of periodicity in the release of sexual cells in *Dictyota* is reported from Naples by I. F. Lewis in the Botanical Gazette, 1910. It is similar in some respects to that recorded on page 14 of this issue for the worm *Odontosyllis*. Mature gametes are released 2 or 3 days after the neap tides. The rudiments of the next generation of gametes begin at the same time. The author finds that the critical points (formation and liberation of the sexual bodies) *are reached on the day that low water occurs at or nearest mid-day*. Thus the maximum intensity of light must be a principal factor in these periodic phenomena. At other places where the plant has been studied this simple correspondence is somewhat modified. This may be due to the persistence of certain inheritances of earlier adaptations.

QUINONE FIXATION OF ALGAE

A. Bonnet says that even the most delicate algae—as the Siphonaeae, Confervaceae, Conjugatae, Florideae, etc., may be satisfactorily fixed in freshly prepared quinone solution with a strength of 4:1000. The advantages of the method are: That it may be used in either salt or fresh water; and that it resists well the dehydration necessary for mounting either by the glycerine-jelly or balsam method. The treatment stains the chlorophyll a greenish brown, and the non-green protoplasm a light yellow.

GROWTH OF NERVES IN CULTURE MEDIA

Professor Ross Granville Harrison (Jour. Exp. Zool., Dec., 1910) has succeeded in growing excised embryonic cells from the nervous system of tadpoles, in hanging-drop cultures of coagulated lymph. Nerve fibrils of more than 1 mm. were thus secured which could be observed at all stages of growth from the nerve cells. His observations show (1) that the primitive nerve fibers are formed by actual protoplasmic movement of the hyaline ectoplasm of the nerve-cell in a way quite analogous to the extension of pseudopodia in rhizopods, and that these fibers end in a rhizopod-like enlargement with fine processes or pseudopodia; and (2) that the